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Valuing Jobs via Retirement: European Evidence

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Abstract

While much has been made of the value of employment relative to unemployment, much less is known about the value of work relative to retirement. We here use two European panel datasets to first show that psychological well-being (measured on the EURO-D and GHQ scales) barely changes on average when individuals retire. However, there is a great deal of heterogeneity in the size of the change between job type and between individuals. Some gain on leaving work, while others experience substantial falls in well-being on retiring, suggesting that they may have preferred to carry on working. We suggest that the results of these analyses can help to inform policy aiming to encourage labour supply by older workers.

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^{*} Corresponding author. PSE, 48 Boulevard Jourdan, 75014 Paris, France. Tel.: +33-1-43-13-63-29. E-mail: Andrew.Clark@ens.fr. The BHPS data were made available through the ESRC Data Archive. The data were originally collected by the ESRC Research Centre on Micro-social Change at the University of Essex. Neither the original collectors of the data nor the Archive bear any responsibility for the analyses or interpretations presented here. This paper uses data from SHARE Waves 1 & 2, as of December 2008. SHARE data collection in 2004-2007 was primarily funded by the European Commission through its 5th and 6th framework programmes (project numbers QLK6-CT-2001- 00360; RII-CT- 2006-062193; CIT5-CT-2005-028857). Additional funding by the US National Institute on Aging (grant numbers U01 AG09740-13S2; P01 AG005842; P01 AG08291; P30 AG12815; Y1-AG-4553-01; OGHA 04-064; R21 AG025169) as well as by various national sources is gratefully acknowledged (see <http://www.share-project.org> for a full list of funding institutions). We thank Alex Bryson, Simon Chapple, Justina Fischer and Nicolas Sirven for useful suggestions.

1. Introduction

One of the broadest questions in Labour Economics concerns the value of working, compared to unemployment. The answer to this question is important for the understanding of behaviour (individuals presumably value “good” jobs better than other jobs, and will make greater efforts to both find and retain them); it is also crucial for the distribution of subjective well-being across different population groups.

It is now commonly-accepted that the unemployed report significantly lower levels of well-being than do the employed. Clark and Oswald (1994) and Winkelmann and Winkelmann (1998) are two relatively early contributions in the Economics literature, although the broad social science literature on this topic spreads back towards the beginning of the 20th Century (as briefly reviewed in Section 2 of Clark *et al.*, 2009). While there is thus agreement that my own unemployment reduces my own well-being (and that the aggregate unemployment rate is often also associated with lower-individual well-being: see Di Tella *et al.*, 2001), far less attention has been paid to any differences between types of employment. In other words, although working is better, psychologically, than unemployment, does the size of the gap depend on the type of job?

The general question here is that of job quality. Are some jobs “better” than others? This question has often been addressed using a small number of purely objective criteria: wages, and to a lesser extent hours of work and job security. However, a perhaps more recent literature (at least in Economics) has argued that these job characteristics, although undoubtedly important, are unlikely to capture all of the job characteristics that workers find important. It is of course possible to try to measure all of the relevant domains, and calculate overall job quality as some kind of weighted sum of them; an alternative, simpler, approach is to essentially ask individuals to carry out this calculation themselves, by asking them to provide an overall evaluation of their job or their life, i.e. their job or life satisfaction scores. This approach has been followed in, for example, Clark (2005 and 2009), Green (2006), Gallie (2007), and Ritter and Anker (2002).

While this approach does have the advantage of simplicity, it is not above criticism. A first central issue is whether individuals understand well-being questions and provide useful information in their answers. An associated second issue is whether such subjective measures can be compared across individuals, especially when the latter live in different countries.

A number of different analytical approaches to this issue are possible. A first one is to appeal to a wide variety of survey evidence to show that there is substantial evidence that subjective scores are at least partly interpersonally comparable. One strand of this validation

literature has, for example, appealed to panel data to show that subjective well-being at time t predicts future behaviour, with individuals discontinuing activities associated with low levels of well-being: life satisfaction predicts future marital break-up, and job satisfaction is a strong predictor of job quits. This validation literature is surveyed in Section 4 of Clark *et al.* (2008b).

A second approach is to relate subjective answers to objective outcome measures in order to distinguish “true” well-being from that which reflects response style. An example of this approach applied to measures of self-assessed health in the first wave of the 2004 Survey of Health, Ageing and Retirement in Europe (SHARE) is Jürges (2007); another using French data on self-assessed health from the 2001 “*Enquête Permanente sur les Conditions de Vie des Ménages*” (EPCV) survey is Etilé and Milcent (2006).

It is also possible to appeal to explicit vignette information, which allows us to “anchor” different individuals’ response styles. The idea here is that individuals answer subjective questions about their own health, job or life, but are in addition asked to evaluate, using the same response scale, the health, job or life of third-party individuals in hypothetical situations. This has been applied to internet survey data on job satisfaction across seven EU countries by Kristensen and Johansson (2008), self-assessed health information in the SHARE dataset by Dourgnon and Lardjane (2007), a pilot study of the health-measurement module of the World Health Survey by Salomon *et al.* (2004), and life satisfaction information in the 2006 wave of SHARE by Angelini *et al.* (2009).

In this paper we will to a large extent avoid this problem by using panel data, allowing us to compare the well-being scores given by the same individuals at different points in time. This “within subject” analysis of changes in well-being allows us to both clean out any fixed individual response style and avoid any problems of endogenous choice of different types of jobs by happy or unhappy individuals.

We appeal to data from both the first two waves of SHARE, which cover eleven different European countries, and the first fifteen waves of the British Household Panel Study (BHPS). Our key aim in this paper is to calculate the values that workers assign to different kinds of jobs by comparing the well-being of the same individual when they are in this job to when they are doing something else. There are a number of ways in which this calculation can be carried out: we can compare the same individual in two different kinds of job; we can compare an individual’s well-being between employment and unemployment; or we can compare the well-being that the same individual reports when in employment and when not in

the labour force. It is this latter approach that we will adopt here, but with the proviso that “not in the labour force” refers to retirement.

This sample restriction to those who are observed in employment and then retirement might seem restrictive. It certainly is so in the sense that it reduces the number of observations available for analysis quite substantially. However, it does have the significant advantage over other specifications that the movement out of employment is likely to be to a large extent exogenous: retirement, like death and taxes, happens to us all. We do acknowledge, however, that this event can to an extent be postponed, and will make a distinction between “early” and “normal” retirees.

In terms of encouraging continuing labour force participation, we can imagine rendering jobs more attractive, relative to retirement. Our question here is then to examine the job characteristics that are associated with different kinds of well-being movements on retirement. If we find, for example, that low-hours workers are particularly happy to retire (which we actually do), then labour-supply incentives arguably need to be directed at this group. We thus explain the change in well-being as a function of the observable characteristics when the individual was in work, and do not include values of the same variables after retirement (which would be equivalent to running a first-difference well-being equation). We therefore retain only relatively few right-hand side variables, all of which are objective. We do not include subjective variables such as the evaluation of working conditions or self-reported health.

The results show striking variation in the valuation of different kinds of jobs, as revealed by the change in well-being on retirement. While for some retirement involves a substantial rise in well-being, indicating that the jobs in question were considered to be of relatively low value, others experience a sharp fall in well-being on retirement. These results are arguably particularly salient in the context of the greying of the labour force, and the consequent debate on the likely necessity of encouraging older workers to remain active in the labour market.

The remainder of the paper is structured as follows. In the next section, we provide a brief overview of the existing literature of the well-being effects of employment and retirement, and how they might be combined to provide an answer to the question “*What makes a good job*”? Section 3 describes the data and the estimation methodology, and Section 4 contains the empirical results. The final section provides a summary and concludes.

2. Literature review

Empirical work on subjective well-being has grown substantially over the past 15 years or so in Economics. While much of this work has determined the correlates of well-being at a point in time, a small but increasing part of the literature has considered a more dynamic analysis. One strand of this latter research has considered adaptation to various life events, such as marriage, divorce and unemployment (see Angelos, 2009, and Clark *et al.*, 2008a) by tracking movements in well-being over time for the same individual. Another has used panel data to control for individual fixed effects, looking at the within-individual changes in well-being upon transiting from one state to another. It is this latter literature to which we contribute here.

A substantial part of this literature has dealt with one particular domain of life, work, focussing on overall job satisfaction, or satisfaction with various aspects of the job such as pay, promotion prospects, or job security. As briefly mentioned in Section 1, a number of papers have implicitly carried out validation analyses of these satisfaction measures by showing that job satisfaction is a good predictor of quit intentions, which in turn predict effective quits (Böckerman and Ilmakunnas, 2009, Lévy-Garboua *et al.*, 2007, and Stevens, 2005).¹ In the same vein, Blanchet and Debrand (2008) underline the impact of specific components of job quality on the desire to retire as early as possible, another subjective indicator of intentions to leave the job. Overall job satisfaction is negatively correlated with this desire, whereas being under pressure from a heavy workload, or having little freedom to carry out one's work are positively correlated with the it.

Subjective well-being would therefore seem to be a key variable for the understanding of labour-market mobility, and labour supply in general. Specifically, as the baby-boom generation approaches retirement age, it would seem essential to identify the factors that determine the value of work, relative to retirement.

The specific analysis of the well-being consequences of retirement has not to our knowledge produced a particularly large literature: some examples are Charles (2004) who, once retirement is instrumented, suggests that it reduces both depression and loneliness, Coe and Lindeboom (2008) who find no overall effect of retirement on health, and Dave *et al.*, who find a negative effect of retirement on mental health. In general this literature has not produced an unambiguous set of results.

¹ This is another important use of panel data in the context of subjective well-being: appealing to the arrow of time to establish causality by showing that current well-being predicts some future observable behaviour.

Most microeconomic analyses of subjective well-being include labour force status variables, where retirement is just one state amongst many others, and most often does not attract any particular commentary. In addition, much analysis of the labour market focuses only on those who are of working age, or even only on those active in the labour market, putting to one side the relationship between well-being and retirement.

There is, however, a substantial literature on the well-being of the older population, without making any explicit reference to its value relative to employment. Earlier work in this vein focused mostly on the economic well-being of retirees, concentrating on retirement income (see Andrews, 1993, and Radner, 1998), or wealth, composed of financial assets, net housing value, and the present discounted value of Social Security retirement and private pension benefits (see Levine *et al.*, 2000). A separate literature has considered the relationship between well-being and age: see Blanchflower and Oswald (1998), Clark and Oswald (1996), Fischer (2009a), and Mroczek and Spiro (2005). This work has emphasised the overall U-shaped relationship between well-being and age, with the possibility of a downturn for the oldest old.

Other work has directly looked at the satisfaction of retirees, as a function of their health, financial security, age, and the circumstances in which their retirement took place. Satisfaction is found to be higher for those whose retirement was scheduled, (Dorfman, 1989, and Nuttman-Schwartz, 2004), or whose retirement occurred “on time”, i.e. at the legal retirement age (Bossé *et al.*, 1987 and 1991, Dreyer, 1989). Related to this literature, a further important determinant of retiree well-being is the degree to which retirement was voluntary (Shultz *et al.*, 1998, Bender, 2004, and Elder and Rudolph, 1999): individuals who retired voluntarily report much higher levels of well-being than do those who were forced to retire; it is possible that this latter group were unable to prepare sufficiently in financial or psychological terms. Finally, Kim and Moen (1991) underline the need to consider couples’ retirement statuses jointly.

The subjective well-being literature is now very rich with respect to the “standard” variables of health, labour-market conditions, marital status and so on. It is also abundant with respect to the well-being of workers as a group, or of retirees. However, the comparison of well-being before and after retirement (for the same individuals) has attracted relatively less attention. Bonsang and Klein (2008) and Kim and Moen (2001) both do so to evaluate the effect of retirement on individual well-being. However, to date this literature has mostly

calculated an average effect of retirement,² and has not taken into account the characteristics of the job (other than its associated income) that the individual occupied before retirement.

It might be thought that job characteristics would be important for the understanding of the well-being effects of retirement, and therefore individuals' desired labour supply. Role theory points to job occupation as a fundamental determinant of retirement satisfaction, reflecting whether individuals feel that they have lost meaning in their lives, or on the contrary feel relieved to have abandoned their jobs. The type of job is central for the individual's identity, and is thus likely to be an important element of the change in well-being upon retirement. Phillipson (1987) notes that "*it is in the retirement transition that the individual calls upon the resources he or she has developed during the early and middle phases of the life course*". His empirical work concentrates on three occupational groups: miners, car factory workers, and architects. He finds that the group most able to redirect their skills in post-retirement life, the architects, experienced a happier retirement transition than did the others. Car workers had difficulty in making new use of their skills once they had stopped working, while the case of miners was particular, in that the transition to retirement was more of a collective phenomenon within the traditional mining community. This research suggests that the type of job the newly-retired occupied previously should be taken into account: either because it was more physically demanding or unpleasant in some other way, or because it supplied fewer financial resources, or even because it allows a smoother integration into post-retirement life.

A recent paper by Fischer (2009b) analyzes the impact of retirement on subjective well-being (here measured by life satisfaction) for both active and inactive people. Retirement is shown to equalize happiness levels across different occupational groups in the United States, while in Europe pre-retirement group-specific happiness differences persist.

Our analysis here contributes to the relatively small literature on the well-being effects of the retirement transition, using panel data. In particular, we pay attention to the type of job in which individuals worked before retiring. As suggested above, the results show that there is wide variation in the change in well-being on retirement, as a function of both individual characteristics and the type of job in which they were previously employed.

3. Data and Methodology

We use two datasets to evaluate job quality via movements in well-being on retirement. The first of these, the Survey of Health, Ageing and Retirement in Europe (SHARE;

² One paper that does allow the effect of well-being on retirement to differ between groups is Pinquart and Schindler (2007), although they do not concentrate on job characteristics as such.

<http://www.share-project.org/>), is a multidisciplinary and cross-national panel database of micro data on health, socio-economic status and social and family networks, covering more than 40,000 individuals aged 50 or over. The aim of SHARE is to allow a better understanding of the economic and social problems linked to ageing, and in particular to allow comparative analyses to be undertaken. SHARE was inspired by the Health and Retirement Survey (HRS) in the United States, which is currently up to its sixth wave, and the British ELSA (English Longitudinal Survey of Ageing) panel.

Eleven countries contributed data to the first wave (2004) of SHARE. These present a representative picture of Europe's economic, social, institutional, and cultural diversity, from Scandinavia (Denmark and Sweden) through Central Europe (Austria, France, Germany, Switzerland, Belgium, and the Netherlands) to the Mediterranean (Spain, Italy and Greece). Further data were collected in 2005-06 in Israel. Two of the "new" EU member states (the Czech Republic and Poland) and Ireland joined the SHARE project in 2006 and participated in the second wave of data collection in 2006-07. At present, we have panel data on eleven countries over the first two waves of the SHARE survey.

The data include information on a wide variety of health variables (including self-reported health, health conditions, physical and cognitive functioning, health behaviour, use of health care facilities), bio-markers (grip strength, body mass index, peak flow), psychological variables (psychological health, well-being, life satisfaction), economic variables (current work activity, job characteristics, opportunities to work past retirement age, sources and composition of current income, wealth and consumption, housing, education), and social support variables (assistance within families, transfers of income and assets, social networks, volunteer activities).

The SHARE data include the Euro-D scale of depressive symptoms, which will be our measure of overall mental well-being. This scale, particularly designed for older respondents, is built up from the answers to twelve questions (administered via face-to-face, computer-aided personal interviews) each referring to a specific symptom of depression. This harmonised depressive-symptom scale was developed to enhance the analysis of the pooled EURODEP³ dataset, as different countries and surveys often appealed to different methods of depression assessment. The resulting EURO-D scale comprises 12 items: depressive affect, pessimism, wishing death, guilt, sleep, interest, irritability, appetite, fatigue, concentration, enjoyment and tearfulness (the exact form of the questions is presented in Appendix A). The between-item validity of the Euro-D scale (Cronbach's $\alpha = 0.72$) is sufficiently high for

³ The EURODEP Consortium is a large, international collaborative project which aggregates data to permit methodologically-sound secondary analyses of epidemiological data across multiple sites in Europe.

the well-being measure to be considered as robust. The resulting depression score is the number of questions to which the individual supplies a negative answer.⁴

We reverse this depression score to produce a scale where 0 indicates the worst level of psychological well-being and 12 the best. In the ensuing analysis, we will focus on the change in EURO-D between the first and second wave of SHARE for those who move from employment (either salaried- or self-employment) to retirement. We have 722 such observations. The change in EURO-D for this sample ranges between -9 (referring to those whose well-being dropped by 9 points on retirement) to +10; the exact distribution is shown in the first panel of Appendix B. The median and mode of the change in well-being on retirement is 0, a score applying to over 30% of this sample. The mean change is 0.17, and two thirds of individuals report well-being changes between -1 and +1. There are, however, relatively long, if flat, tails.

The second dataset we use is single-country, but with a far greater number of waves: the BHPS (<http://www.iser.essex.ac.uk/ulsc/bhps/>). The British Household Panel Survey is an annual panel which initially consisted of around 10 000 individuals in around 5 000 different households in Great Britain; increased geographical coverage has pushed these figures to around 16 000 and 9 000 in more recent waves. Here we make use of data from the first fifteen waves (1991-2005).

This general survey includes standard demographic variables, plus detailed information on the individual's labour-force status and income. It also includes, in a self-completion questionnaire, a battery of psychological questions, the answers to which will form our dependent variable, the GHQ-12 measure of mental well being (see Goldberg, 1972). The twelve questions cover feelings of strain, depression, inability to cope, anxiety-based insomnia, and lack of confidence, amongst others (see Appendix A). Responses are made on a four-point scale of frequency of a feeling in relation to a person's usual state: "Not at all", "No more than usual", "Rather more than usual", and "Much more than usual". The GHQ is widely used in medical, psychological and sociological research, and is considered to be a robust indicator of the individual's psychological state. The between-item validity of the GHQ-12 is high in this sample of the BHPS, with a Cronbach's alpha score of 0.89.

This paper uses the Caseness GHQ score, which counts the number of questions for which the response is in one of the two "low well-being" categories. This count is then reversed so that higher scores indicate higher levels of well-being, running from 0 (all twelve responses

⁴ This is thus a multi- rather than a single-item index; the former are often said to have better statistical properties. The correlation between the reversed EURO-D score and life satisfaction in the SHARE dataset is 0.37.

indicating poor psychological health) to 12 (no responses indicating poor psychological health).⁵

As above, we consider individuals who are in employment at time t , but retired at time $t+1$. This produces around 1500 observations over the first 15 waves of the BHPS. Our dependent variable here is the change in well-being between t and $t+1$, as measured by the GHQ-12. The mean change in well-being on moving from employment to retirement in the BHPS is almost exactly zero, and the median and modal change is zero (as was the case in the SHARE data, using a different measure of well-being, above). However, there is substantial variation around this mean: around one in 7 of this sample report either a rise in well-being of two or more points on the 0 to 12 scale on retiring, or a fall in well-being of two more points.

The next section of the paper uses these changes in well-being as dependent variables. We first consider the relationship to a number of individual-level variables (such as sex, age, and education). We do not in fact expect these to necessarily have much explanatory power, as we are estimating the change in well-being (so that any significant effect of sex, for example, would imply that retirement has a different well-being effect for women compared to men). Of most interest for the current paper, we also relate these changes in well-being to various characteristics of the job that the individual held pre-retirement. The question we therefore ask is whether some jobs are of better quality, as perceived by the people who do them, than are others. This is of importance both in general terms of the distribution of well-being within the economy, but also with respect to encouraging continuing labour-force participation by older workers.

4. Results

4.1. Descriptive Statistics

We start with some descriptive statistics. The mean changes in well-being on retirement by a number of different variables are presented in Table 1. It is worth recalling that these changes refer to well-being in retirement minus well-being (at the previous wave) in employment. As such, a positive figure means that the individual experiences better psychological health when retired than when in employment.

The results of these bivariate correlations are not always the same between the two datasets, which is perhaps unsurprising. Some of the correlations are significant, but it is probably wise to bear in mind that these in no way prove a causal link between the variable in question and

⁵ As for the SHARE data above, this is a multi-item index. The correlation between the reversed GHQ-12 score and life satisfaction in the BHPS is 0.50.

the well-being effect of retirement. This may well be the case for the education results, for example.

With respect to hours of work, we create a binary variable for working part-time (29 hours per week or less). There is no significant relationship between part-time work and the change in well-being in SHARE; however, full-time workers are happier to retire in the BHPS. As we will see below, some of these relationships persist in the multivariate analysis. On the other hand, there are no strong relationships in either dataset with either second job or manager.

Employees are significantly happier to retire than are the self-employed in SHARE. This might be interpreted as the mirror image of the well-known result that the self-employed consistently report higher levels of job satisfaction than do employees (Blanchflower and Oswald, 1998). The same gap between the employed and the self-employed is also seen in the BHPS data, although it is far from being significant there.

The results with respect to occupation broadly exhibit a negative status profile in SHARE, with those working in the Service and Sales sector, or Elementary Occupations, being the happiest to retire. The picture in the BHPS is far less clear in this respect. Regarding industry, those working in the Heavy Manufacturing sector report the greatest rise in well-being on retirement in both datasets. In the SHARE data, those who retire from Education, Health and Social sectors are particularly happy to retire. This does not come out clearly in the BHPS, as these industries are mixed in with a number of others in the “Other Services” sector.

Last, the well-being change on retirement is broadly positively correlated with the individual’s level of education in both SHARE and the BHPS, although the correlation is not significant for the former. Although bivariate correlations reveal the distribution of well-being across groups, as noted above it is far more difficult to infer causality. The education results could well reflect the occupational distribution, or an effect of income. In order to tease out the different correlations with the variables briefly discussed above, we now turn to multivariate regression analysis.

4.2. Regression results

We estimate the change in well-being upon retirement via OLS regressions.⁶ As the dependent variable is a within-subject change in well-being, any individual fixed well-being effect will be washed out in this analysis. Any remaining significant effect that is found (by occupation for example) is identified off of the well-being score given by individuals who

⁶ We are inspired in this choice by Ferrer-i-Carbonell and Frijters (2004), who show that ordinal and cardinal analyses of subjective well-being data produce similar results.

have just retired compared to the well-being scores given by the same individuals when they were in work.

We introduce all of the explanatory variables listed in Table 1 in the analysis, plus regional dummies in the case of the BHPS.⁷ We enter hours as a series of dummy variables representing ten-hour intervals (1-9, 10-19 etc.). This produces a large number of estimated coefficients, not all of which are particularly well-defined in our relatively small samples. We then proceed to regroup the categories together which have attracted similar estimated coefficients. This procedure is carried out for the hours, occupation, industry and regional/country dummies. Variables which continue to attract insignificant coefficients are dropped from the regression until we obtain our final preferred specification for the entire sample of those who move from employment to retirement from one wave to the next.

It should be underlined that the reason for this regrouping of countries, industries and occupations is purely pragmatic. We don't *a priori* think that the resulting groups "go together" in any natural sense. Putting these different variables together reduces the standard error, which is an issue in our analysis of only relatively few retirements. To be clear, were we to introduce the different categories in each group as separate dummy variables, then each would attract roughly the same estimated coefficient, but the standard error would be so high as to render many of them insignificant.⁸ Grouping them together does not change the projection into the estimation space, but is a pedagogic device to underline some broad correlations.

This preferred specification appears in column 1 of Table 2 for the SHARE data. The mean change in EURO-D across all retirees was 0.17. The results in Table 2 show that there are significant differences in this well-being movement by both individual and previous job characteristics.

First, as the bivariate results had hinted, workers with lower levels of education do worse on retirement. This is not due to the industry or occupations in which they worked, as we have introduced controls for these variables.⁹ The results in column 1 actually predict that those in

⁷ We cannot use wave dummies for the SHARE data, as there is only date at which retirement can take place. Adding a time trend to the BHPS analysis produced an insignificant estimate and did not change the other qualitative results.

⁸ In the sense that we imagine that a sample size four or five times greater would render the estimated coefficients on most of the individual category dummies significant in their own right.

⁹ The size of the negative estimated coefficient for low education is somewhat larger than that which pertains if no other job-related variables are included. This is because the lower-educated are actually somewhat more likely to be found in the 10-29 hours per week group, and Services, Sales and Elementary Occupations. Both of the latter variables attract positive coefficients, so that their omission drives the estimated coefficient on low education upwards (i.e. towards zero). However, the coefficient on low education is always negative, no matter what controls are included.

the lower education group will suffer a fall in well-being on retiring, *ceteris paribus*.¹⁰ This may seem strange, given that we suspect that the better-educated probably have better jobs. However, it may well be the case that rather unsatisfying jobs also give rise to rather unsatisfying pensions. This underlines the broad principle that when we are considering the factors that push people to stay in jobs, or drive them away from them, it is essential to take into account what they would be doing otherwise. The less well-educated may have objectively worse jobs, but these results are consistent with them having worse retirements as well, making their jobs potentially more valuable relative to retirement than those of the better-educated.¹¹

The remainder of the table covers job and country characteristics. Those who worked in Service, Sales and Elementary occupations experience a significantly larger rise in well-being on retiring (of half a point on the EURO-D scale) than do those in other occupations. These jobs are evidently considered to be unattractive, relative to retirement. The opposite holds for a group of industries that we call “Industry group 1”, where well-being is predicted to fall on retirement.

One key aspect of the job is the number of hours worked per week. It might be thought that one way of encouraging older workers to stay in the labour force would be to make retirement more of a gradual process, as opposed to a binary decision. The results in Table 1 challenge this view. Far from easing the transition to retirement, part-time work seems to be associated with jobs that are actually valued less. Taken at face value, this would suggest that instigating part-time work for those of retirement age might actually inspire them to retire sooner, rather than the opposite.¹²

Last, the experience of retirement is far from being the same across countries. Retirement is associated with larger rises in well-being in Germany, Spain, France and Italy, and particularly so in Greece and Belgium. It is tempting to read these country results as reflecting institutional characteristics. This may well be the case, but they do not seem to match pension generosity particularly well. Of the six countries cited above, three are above the OECD average in terms of pension generosity (Spain, Italy and Greece), but the other three are below (see OECD, 2007). Exploring the causes of the cross-country variety in the (subjective well-being) retirement experience would seem to be a fruitful area for further research.

¹⁰ If they belong to the omitted categories for the hours, occupation, industry and country variables that is.

¹¹ The wage the individual earned when working at t is indeed positively correlated with their monthly income when retired at $t+1$.

¹² This holds at the margin. Doubling the number of part-time jobs might also lead to changes in the characteristics of the individuals who accept them. We have not addressed the issue of the endogeneity of hours' choices here.

The second and third columns of Table 2 reproduce the preferred specification, but applied to women and early retirees respectively. This produces perhaps surprisingly little change in the overall data shapes, in that none of the coefficients changes sign. It is worth noting that the well-being boost from leaving part-time jobs and those in the lower-status occupations is particularly pronounced for women (these are linear regressions, so the estimated coefficient represents the marginal effect).

Table 3 reproduces this exercise for the BHPS data. The hours results show a particular dislike of long-hour jobs in the UK. Log wages are (weakly) positively associated with the change in well-being on retirement, again underlining that good jobs may come with good pensions.¹³ With respect to industry and occupation, retirement is experienced negatively by those who worked in the extraction, metal and other manufacturing sectors. This group may well have difficulty in redirecting their skills post-retirement, as suggested by Phillipson (1987). The sharpest fall in well-being on retirement is found for those who worked in Sales; this is especially true for women. It is tempting to interpret this result as perhaps showing the degree of social contact that some people experience and enjoy at work.¹⁴ On the other hand, those in Managerial and professional occupations report a significant rise in well-being upon retirement.¹⁵ Last, even conditional on occupation and industry, there are large and significant differences in the change in well-being across the different regions of the UK. The disparity between South Yorkshire (the region where retirement leads to the biggest fall in well-being, *ceteris paribus*) and the regions in Regional Group 2 amounts to almost two points on the GHQ scale, which is a very sizeable gap. As for the SHARE results above, it would seem very useful for both positive and normative reasons to understand why retirement has such a widely-varying impact on well-being in different locations.¹⁶

With respect to early retirement in both datasets, it is perhaps useful to note that the constant, which reflects the average well-being movement from retirement in the control group, is more positive in both Tables 2 and 3 (although the differences look to be far from

¹³ We can look at income in retirement as well, although, as noted in the introduction, our purpose is not to explain the change in well-being by the change in income, but rather to identify groups of workers for whom retirement involves a significant rise, or fall, in well-being. Adding retirement income to the BHPS analysis produces a positive, but insignificant, estimate. This effect is much stronger for the early retirees, suggesting that more generous pensions may be a significant factor in explaining early retirement decisions.

¹⁴ In Kahneman *et al.* (2004), individuals' positive affect, measured using the Day Reconstruction Method (DRM), was highest when performing activities with friends and relatives. Being with clients/customers and co-workers appeared around the middle of the ranking; the worst of all was being alone.

¹⁵ The Managerial and professional occupation dummy is correlated with the "Manager or Supervisor" dummy (which itself attracts a negative coefficient). Dropping the latter reduces the estimated coefficient on the former, which still however remains positive and borderline significant.

¹⁶ It is also possible to carry out the same analysis using life satisfaction as the dependent variable. This produces some results which are similar to those in Table 3, but others that differ. This perhaps reflects the different scope of the two questions, and the fact that one is single-item and the other multi-item.

significant at conventional levels). This is consistent with early retirement being more of a choice. At first sight, this may seem to be inconsistent with the German Socio-Economic Panel results in Börsch-Supan and Jürges (2009), who note that early retirement may be associated with a negative health shock, and as such produce a negative and short-lived effect on well-being. However, it is worth noting that our analyses in Tables 2 and 3 are in first differences, so that any negative shock that was felt both in employment at t and in retirement at $t+1$ will be washed out of this analysis.

Other results in Table 3 show that early retirees who worked long hours report an especially large rise in well-being (of two points on the 0-12 GHQ scale), and that early-retiring managers report particularly large drops in well-being. As the literature suggests that voluntary retirement should be associated with greater increases in well-being in general, one tentative consistent reading is that early-retiring managers were pushed out of their jobs, for whatever reasons, rather than exercising a free choice.¹⁷

4.3. Interpretation

The above regression results reveal a wide disparity in the effect of retirement on individual well-being. Some groups experience sharp rises in well-being on retiring; others' well-being falls. In the context of a greying population, encouraging labour supply by older workers has often been mooted as a way of attenuating the problem of a rising dependency ratio. This does of course presuppose that there are jobs available for older workers. Here we ignore this demand-side aspect, and concentrate on policies which might incite older workers to stay in their jobs, rather than retiring.

This paper has proposed one way of identifying any incentives which might be needed, by simply comparing the well-being of the same individual as they pass from employment into retirement. Using this method, retirement has been shown to produce only mild increases in well-being on average. However, there are substantial disparities between groups, and it is these which inform us where policy might be aimed in order to encourage older workers' continuing participation.

The SHARE regression results show that there are certain groups who are happy, so to speak, to retire. One interpretation is that it is these groups which should be targeted by labour-supply policy. Across Europe, part-time work does not seem to be particularly valued by those close to retirement, in the sense that their well-being rises when they do retire from

¹⁷ Brown (2002) suggests that early retirement in the US HRS data is disproportionately offered to workers in "career" jobs (those who have worked with the same employer for a long time, in jobs with better wages and benefits). We might assimilate Managers to this group.

such jobs. This is particularly true for women. Equally, workers in Service, Sales and Elementary occupations are relatively happy to retire.

It might be thought that workers in lower-quality jobs would be happier to retire. This is not necessarily the case. One clear example of this is in the effect of education. The higher-educated, who undoubtedly have better jobs, experience greater rises in well-being on retirement. The key to understanding this phenomenon is that the retirement decision is taken by comparing the value of work to the value of retirement. Those with higher education have better jobs, but also undoubtedly have more attractive pensions, and perhaps a higher value of leisure. As such, it is not sufficient to look at the existing distribution of worker well-being of those close to retirement to see where incentives should be applied in order to delay retirement.

The method we have proposed here to an extent allows the difference between employment and its counterfactual, retirement, to be calculated. Individuals will still behave to maximise their well-being, but those with bad jobs might have even worse retirements. It is the difference between the value of the two outcomes that will determine behaviour.

That the level of well-being in work and the change in well-being on retirement are not necessarily the same can be illustrated in the two datasets that we analysed above. A simple cross-section regression of the inverted EURO-D score of workers aged 50 or more in SHARE produces an estimated coefficient on low education that is negative and significant: less-educated workers have worse jobs. However, the same regression in first difference when the individual retires, as shown in Table 2, again produces a negative significant coefficient on low education: the well-being of the less-educated falls more upon retirement. This seeming paradox can be resolved by allowing education to affect not only the value of employment, but also that of retirement.¹⁸

5. Conclusion

How can subjective well-being data inform us about retirement? While it is now standard to underline that employment is better than unemployment, the comparison between employment and retirement has received far less attention. We here use two panel datasets, including two different multi-item subjective well-being scores, to show that the average well-being change on retirement is only slightly positive. However, this average figure includes a great deal of heterogeneity. Certain types of workers experience substantial falls in well-being on retirement (the lower-educated in SHARE, and Sales workers in the BHPS),

¹⁸ An analogous result pertains in the BHPS data with respect to wages.

while others enjoy higher well-being (part-time workers in SHARE, and those in managerial and professional occupations in the BHPS). We have argued that it is these latter groups that are of interest in the context of encouraging continued labour supply by older workers.

It is noticeable that “What makes a good job” and “who is unhappy to retire” do not necessarily give the same answers. Individuals who have good jobs may have even better retirements. As such, policy to make jobs more attractive has to bear in mind that this only addresses half of the issue: individual decisions will depend not only on the value of the job, but also on the value of retirement. Some of the results above are consistent with inequality in labour-market outcomes feeding through into inequality in retirement outcomes. As a consequence, those who have less good jobs will not necessarily be those who are the most tempted to leave them.

Last, it is striking how much regional variation there is in the well-being effect of retirement. In the SHARE data, there are considerable differences between countries, with four of the six founding members of the EU seemingly having particularly attractive retirement plans (or alternatively particularly bad jobs). This country classification does not reflect benefit generosity in any obvious way. Equally, in the BHPS data, in what is a unified system, there are very large regional differences in the change in well-being upon retirement. While our discussion of labour-supply incentives above focussed on the differences in well-being associated with industries, occupations and hours, those related to region or country were at least as large. The use of subjective well-being data has already allowed us to pinpoint certain groups that do better or worse when leaving the labour market. One of the next challenges may well be to use the same approach to understand why neighbours, both distant and far, have such diverse valuations of employment and retirement.

Appendix A: Measures of Well-Being

SHARE

The twelve questions used to create the EURO-D measure appear in the SHARE questionnaire as follows:

1. *Earlier we talked about your physical health. Another measure of health is your emotional health or well being -- that is, how you feel about things that happen around you.*

- a) *In the last month, have you been sad or depressed?*
- b) *Have you been irritable recently?*
- c) *In the last month, have you had too little energy to do the things you wanted to do?*
- d) *In the last month, have you cried at all?*

with the responses:

No. 0
Yes 1

then

- g) *What are your hopes for the future?*

with the responses:

Any hopes mentioned..... 0
No hopes mentioned 1

- h) *In the last month, have you felt that you would rather be dead?*

with the responses:

Any hopes mentioned..... 0
Any mention of suicidal feelings or wishing to be dead...1

- i) *Do you tend to blame yourself or feel guilty about anything?*

with the responses:

No such feelings, or unclear.....0
Obvious excessive guilt.....1

- j) *Have you had trouble sleeping recently?*

with the responses:

No trouble sleeping.....0
Trouble with sleep or recent change in pattern.....1

k) *In the last month, what is your interest in things?*

with the responses:

No mention of loss of interest.....0
Less interest than usual mentioned 1

l) *What has your appetite been like?*

with the responses:

No diminution in desire for food 0
Diminution in desire for food..... 1

m) *How is your concentration? For example, can you concentrate on a television programme, film or radio programme?*

n) *Can you concentrate on something you read?*

with the responses:

No such difficulty mentioned..... 0
Difficulty in concentrating 1

o) *What have you enjoyed doing recently?*

Mentions ANY enjoyment from activity..... 0
Fails to mention any enjoyable activity..... 1

BHPS

The twelve questions used to create the GHQ-12 measure appear in the BHPS questionnaire as follows:

1. *Here are some questions regarding the way you have been feeling over the last few weeks. For each question please ring the number next to the answer that best suits the way you have felt.*

Have you recently....

a) *been able to concentrate on whatever you're doing ?*

Better than usual 1
Same as usual 2
Less than usual 3
Much less than usual 4

then

- b) *lost much sleep over worry ?*
- e) *felt constantly under strain ?*
- f) *felt you couldn't overcome your difficulties ?*
- i) *been feeling unhappy or depressed ?*
- j) *been losing confidence in yourself ?*
- k) *been thinking of yourself as a worthless person ?*

with the responses:

Not at all 1
No more than usual 2
Rather more than usual 3
Much more than usual 4

then

- c) *felt that you were playing a useful part in things ?*
- d) *felt capable of making decisions about things ?*
- g) *been able to enjoy your normal day-to-day activities ?*
- h) *been able to face up to problems ?*
- l) *been feeling reasonably happy, all things considered ?*

with the responses:

More so than usual 1
About same as usual 2
Less so than usual 3
Much less than usual 4

Appendix B**The Distribution of the Change in Well-Being on Retirement**

SHARE				BHPS			
Change in inverted EURO-D scale	Number of observations	Percentage	Cumulative percentage	Change in inverted GHQ scale	Number of observations	Percentage	Cumulative percentage
				-12	3	0.2	0.20
				-11	4	0.27	0.47
				-10	4	0.27	0.73
-9	3	0.42	0.42	-9	5	0.33	1.07
-8	1	0.14	0.55	-8	10	0.67	1.73
-7	2	0.28	0.83	-7	14	0.93	2.66
-6	1	0.14	0.97	-6	18	1.2	3.86
-5	5	0.69	1.66	-5	21	1.4	5.26
-4	9	1.25	2.91	-4	35	2.33	7.59
-3	23	3.19	6.09	-3	32	2.13	9.73
-2	57	7.89	13.99	-2	71	4.73	14.46
-1	115	15.93	29.92	-1	175	11.66	26.12
0	222	30.75	60.66	0	708	47.17	73.28
1	147	20.36	81.02	1	171	11.39	84.68
2	77	10.66	91.69	2	73	4.86	89.54
3	30	4.16	95.84	3	50	3.33	92.87
4	14	1.94	97.78	4	24	1.6	94.47
5	12	1.66	99.45	5	20	1.33	95.80
6	1	0.14	99.58	6	22	1.47	97.27
7	1	0.14	99.72	7	12	0.8	98.07
8	1	0.14	99.86	8	8	0.53	98.6
10	1	0.14	100.00	9	6	0.4	99.00
				10	9	0.6	99.60
				11	4	0.27	99.87
				12	2	0.13	100.00
Total	722	100.00		Total	1,501	100	

Source: SHARE waves 1-2.Source: BHPS waves 1-15.

Table 1. Mean Changes in Well-Being and Individual and Job Characteristics**Changes in Well-Being on Retirement: Binary correlations**

SHARE, Waves 1-2.

BHPS, Waves 1-15.

<u>Hours of Work</u>	Freq.	Mean		Freq.	Mean
Hours≥30	534	0.099	Hours≥30	703	0.246
Hours<30	161	0.360	Hours<30	647	-0.114
t-test	-1.48		t-test	2.38	
 <u>Second Job</u>	 Freq.	 Mean		 Freq.	 Mean
No second job	653	0.181	No second job	1412	0.040
Second job	53	-0.057	Second job	87	-0.126
t-test	0.85		t-test	0.55	
 <u>Manager/Supervisor</u>	 Freq.	 Mean		 Freq.	 Mean
No superv. power	375	0.323	No superv. power	829	-0.014
Superv. power	261	0.073	Superv. power	386	0.262
t-test	1.65		t-test	-1.58	
 <u>Self-employed</u>	 Freq.	 Mean		 Freq.	 Mean
Employee	574	0.237	Employee	1276	0.049
Self-employed	133	-0.165	Self-employed	225	-0.071
t-test	2.15		t-test	0.60	
 <u>Occupation</u>					
Major isco group	Freq.	Mean	Major SOC group	Freq.	Mean
Agric/fish(skilled)	34	-0.364	Managers&administrators	192	0.475
Ass.pro/technicians	130	0.109	Professional occupations	164	0.57
Clerks	68	0.239	Ass. Pro/Technical occ.	152	0.027
Craft	67	0	Clerical&secretarial occ.	203	0.179
Elem. occup.	66	0.646	Craft&related occ.	127	0.025
Managers	98	0.0816	Personal&protective service occ.	153	-0.423
Other occup.	14	0	Sales occupations	85	-0.819
Plant/machine op	48	-0.044	Plant&machine operatives	118	0.08
Professionals	122	0.207	Other occ.	179	-0.299
Serv/sales	61	0.483			
Total	708	0.172	Total	1373	-0.021
 F-test	 1.07		 F-test	 3.24	
(p-value)	(0.38)		(p-value)	(0.001)	

<u>Industry</u>					
NACE code	Freq.	Mean	SIC Divisions	Freq.	Mean
R&D,real est.,pub.adm.&def.	109	0.389	Agric.,forest.,fish.	42	-0.417
Transp.,telecom.,ins.	79	-0.013	Energy&water supply	35	-0.114
Agric.,forest.,fish.	13	-0.077	Extraction, mf metals	46	-0.07
Cultur.,private hh	35	-0.235	Metal goods, engineering&vehicles ind.	103	0.6
Educ.,hlth&social	163	0.478	Other mf industries	103	-0.133
Elec.,gas,construct.	60	-0.183	Construction	124	-0.191
Mf motor.,recycl.	20	0.05	Distribution, hotels & catering	209	-0.149
Mf wood,metals,machin.	61	0.417	Transport & com.	130	0.172
Mining,mf food,tobac.	40	0.158	Banking, finance, ins., busin. serv.	244	0.257
Other industry	10	0.3	Other services	428	-0.007
Trade,hotels	58	-0.224			
Total	648	0.188	Total	1464	-0.0052
F-test	1.30		F-test	1.01	
(p-value)	(0.225)		(p-value)	(0.433)	

<u>Education</u>	Freq.	Mean		Freq.	Mean
Lower education	278	0.0515	Other or no qualif	692	-0.179
Secondary education	245	0.288	A-levels/O-levels/nursing qualif.	358	0.112
Tertiary education	208	0.193	Degree or other higher qualif.	522	0.258
Total	722	0.171	Total	880	0.064
F-test	0.96		F-test	3.68	
(p-value)	(0.382)		(p-value)	(0.025)	

<u>Country</u>	Freq.	Mean
Austria	55	0.111
Germany	85	0.235
Sweden	110	-0.046
Netherlands	75	0.122
Spain	37	0.194
Italy	76	0.276
France	70	0.167
Denmark	71	-0.286
Greece	44	0.455
Switzerland	30	0.133
Belgium	78	0.654
Total	731	0.172

Table 2. Regression Analysis of the Change in Well-Being on Retirement:
SHARE, Waves 1-2.

Changes in Well-Being: Preferred Specification

Dependent variable: Retirement Well-Being - Employment Well-Being

Sample	All	Women	Early retirement
Lower education	-0.327* (0.169)	-0.496 (0.337)	-0.330 (0.293)
Service, Sales and Elementary occupations	0.505** (0.213)	0.875** (0.375)	0.277 (0.399)
Industry group 1	-0.492*** (0.163)	-0.557 (0.338)	-0.746*** (0.274)
Hours: 10 to 29 per week	0.382* (0.211)	0.601* (0.330)	0.417 (0.367)
Germany, Spain, France and Italy	0.301* (0.168)	0.207 (0.322)	0.517* (0.286)
Greece and Belgium	0.802*** (0.234)	1.237** (0.488)	0.684* (0.390)
Constant	0.0945 (0.144)	-0.0595 (0.277)	0.206 (0.244)
No. of Observations	626	254	221
R-squared	0.054	0.083	0.078

* significant at 10%; ** significant at 5%; *** significant at 1%.

Standard errors in parentheses

Note: Industry group 1 consists of "electricity, gas and water supply; construction", "trade; hotels and restaurants", "community, social and personal service activities", and "transport, storage and communication; financial intermediation"

Table 3. Regression Analysis of the Change in Well-Being on Retirement: BHPS, Waves 1-15.

Dependent variable: Retirement Well-Being - Employment Well-Being			
Sample	All	Women	Early retirement
Hours: 0 to 9, or 40 to 49 per week	-0.352* (0.202)	-0.299 (0.332)	-0.442 (0.349)
Hours: over 50 per week	0.755* (0.438)	-0.662 (0.792)	2.275*** (0.757)
Log wage	0.123 (0.093)	0.272* (0.146)	0.133 (0.183)
Manager or supervisor	-0.260 (0.209)	-0.312 (0.313)	-0.663** (0.331)
Extraction, metal and other manufacturing	-0.241 (0.222)	-0.284 (0.348)	-0.953** (0.382)
Managerial and professional occupation	0.516** (0.234)	0.599 (0.379)	0.419 (0.358)
Personal and protective services, and others	-0.325 (0.218)	-0.304 (0.315)	-0.457 (0.414)
Sales	-0.927*** (0.358)	-1.189*** (0.457)	-0.321 (0.747)
Regional group 1	-0.562*** (0.197)	-0.472 (0.296)	-0.497 (0.344)
East Midlands	-0.813** (0.365)	-1.327** (0.576)	-1.450** (0.571)
Regional group 2	0.568* (0.290)	0.721* (0.437)	1.074** (0.472)
South Yorkshire	-1.362* (0.761)	-1.520 (1.274)	-0.510 (1.598)
Constant	-0.240 (0.639)	-1.127 (0.981)	-0.013 (1.333)
No. of Observations	1121	602	489
R-squared	0.054	0.068	0.087

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%; Standard errors in parentheses;

Regional group 1 consists of Inner London, the South West, East Anglia, Greater Manchester, Merseyside, West Yorkshire, The Rest of Yorkshire and Humberside, Wales and Scotland.

Regional group 2 consists of the West Midlands, the rest of the North West, and Tyne and Wear.

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